

IN THE CLAIMS:

Amended claim 28 now reads as follows:

28. (First Amended) A method of generating defects in a lattice structure of a semiconductor material during thermal treatment of the material, said method including the steps of:

C1
subjecting said semiconductor material to a treatment protocol comprising a preliminary step and a later step which occurs after the preliminary step, the preliminary step including controlling at least one of a concentration and a distribution of defects or vacancies as a function of a process gas atmosphere such that the subsequent concentration and diffusion of foreign atoms within said semiconductor material are influenced by the newly created respective concentration or distribution of defects or vacancies in said semiconductor material; and

the later step of the treatment protocol including either producing an $\text{Si}_x\text{O}_y\text{N}_z$ oxy-nitride layer having a thickness of up to 2nm (20 angstroms) on a surface of said semiconductor material, or

producing an Si_3N_4 layer having a thickness of up to 4nm (40 angstroms) on said semiconductor material at a location on said surface of said semiconductor material at which a natural SiO_2 layer has previously been removed prior to the thermal treatment of said semiconductor material.

Please add the following new claim 50:

C2
CMT
50. (New) A method of generating defects in a lattice structure of a semiconductor material during thermal treatment of the material, said method

Including the steps of:

subjecting said semiconductor material to a treatment protocol comprising a preliminary step and a later step which occurs after the preliminary step, the preliminary step including controlling at least one of a concentration and a distribution of defects or vacancies in the form of a selected one of vacancies (empty lattice positions) and semiconductor-substrate atoms on interstitial lattice positions (self-interstitials) as a function of a process gas atmosphere such that the subsequent concentration and diffusion of foreign atoms within said semiconductor material are influenced by the newly created respective concentration or distribution of defects or vacancies in said semiconductor material; and

C2
cancel

the later step of the treatment protocol including either producing an $\text{Si}_x\text{O}_y\text{N}_z$ oxy-nitride layer having a thickness of up to 2nm (20 angstroms) on a surface of said semiconductor material, or

producing an Si_3N_4 layer having a thickness of up to 4nm (40 angstroms) on said semiconductor material at a location on said surface of said semiconductor material at which a natural SiO_2 layer has previously been removed prior to the thermal treatment of said semiconductor material.
